Something old, something new

Text – Samantha Senior
Photography – The Property Agency

Energy

PROJECT
North – Milsons Point, Sydney

CLIENT
Australand Residential No130 &
Rebel Property Group

ARCHITECT
PTW Architects

FAÇADE CONSULTANT
Hyder Consulting

ACOUSTIC ENGINEER
Marshall Day Acoustics

GLAZIER
Micos Aluminium Systems

PRINCIPAL GLASS PROVIDER
Viridian

PROJECT CONSTRUCTION MANAGER
St Hilliers Contracting

GLASS SPECIFICATIONS
8.38mm Viridian Laminated ComfortPlus Clear
10.38mm Viridian Laminated ComfortPlus Clear
10.5mm Viridian Laminated ComfortPlus Clear
– incorporating Viridian HUSH Acoustic Interlayer
12.5mm Viridian Laminated ComfortPlus Clear
– incorporating Viridian HUSH Acoustic Interlayer

An adaptive reuse of a 1960s commercial building to create a 15 floor luxury apartment complex is an amazing example of how an old, redundant building can be converted to have a new life and prominent place within the built environment. Designed by PTW Architects and set on a prime North Sydney site adjacent to the Sydney Harbour, the exclusive development offers expansive views across the harbour, city skyline and surrounds.

Viridian performance glazing incorporated extensively into the expressed concrete frame maximises the stunning outlook. Feature glazed bay windows with curved glazed corners were introduced at the north east and south east aspects of the building to provide a soft aesthetic transition to the prominent corners of the building and create a distinct facade that stands out from the adjacent buildings. The soft white and grey palette of exterior colours, along with the shadowing of the freestanding columns and slab edge channel, creates an outstanding residential building design with contemporary sculptural lines.

The adaptation of an existing pre-cast clad steel and concrete office building into a modern apartment building with an appropriate residential aesthetic is no easy task but a unified vision goes a long way in seeing it through to fruition. "Everyone involved embraced the idea of recycling an old redundant office building and giving it new life," says PTW Director, Terry Brabazon. "A critical analysis of the existing building was carried out during the redesign in conjunction with the structural and services consultants to determine the extent of feasible structural retention and adaptation."

"Residential adaptive re-use projects have an expectation that cheaper developments can be realised due to the saving in demolition and structure. This saving is often difficult to realise and requires a design approach that constantly balances the retention of existing elements against building new – a complex and often not a straight forward process."

Old office buildings typically have deep floor plans that provide limited daylight penetration – a characteristic at odds with modern residential architecture that seeks to exploit natural light to its fullest. "This required a great deal of consideration to overcome. Developing well laid out apartments within the confines of the existing structural column and slab constraints is always a challenge to successfully resolve. Existing structural deflections and variety in tolerances often became an issue in the tight planning of the apartments that needed constant attention during the design and construction," says Terry.

The depth of the existing building and the proximity of neighbouring buildings made it necessary to optimise the outlook and daylight penetration on the north, east and south west frontages by maximising the extent of glazing. To this end, new balcony structures were added to the north and south to provide weather and sun protection to the main glazed facades. Along the east side, balconies were recessed in behind the existing column structure to provide similar protection. The west facing façade was created as a solid wall with punched windows to control the westerly sun exposure and to restrict overlooking from the neighbouring buildings.

Fast forward to the June 2009 completion date and the result is a diversity of generous well planned apartments with enviable views. Seventy-six luxury apartments, including four penthouses, span the building's 15 levels, while the entry of Sydney's newest residential hub sits at ground level alongside retail and commercial space, with three basement levels providing parking.

Main apartments have been orientated to take advantage of key views to the north-east, south-east and south-west. "Limits on overshadowing of the adjacent park defined the splayed nature of the corner bay windows and height restrictions to roof top projections also helped to define a clean minimal plant aesthetic to the roof top," comments Terry. Slab edges, new and old, have been faced with a continuous

aluminium channel and all the external existing columns have been clad with aluminium panels to unify their appearance. External louvres have been limited to areas of the façade where visual concealment was necessary. Instead, performance glazing has been used to manage solar loads and at the same time negating the need for more extensive external louvre treatment.

Glazing tints and colours were kept minimal to preserve the colour rendition of the exterior views from the interior and to keep the exterior colour of the building soft and light. "Heavily tinted and coloured glass becomes highly reflective at night and can make enjoyment of night time views a problem. For this reason a performance glass was chosen rather than a dark body tint glass," explains Terry.

Looking beyond the undeniable aesthetic appeal of widespread glazing, glass selections for the building were given careful consideration to ensure they met acoustic and energy efficiency requirements. Enter Viridian Architectural Segment Manager (NSW/ACT), Anthony Gunther. Anthony liaised with the acoustic engineers, Marshall Day Acoustics, and the energy assessor to ensure glass met all of the relevant requirements, as well as the façade engineer to determine the optimal glass choice for the façade design. "Essentially, I helped gel everything together and join the dots between all the individual parts to arrive at a complete glass solution," says Anthony.

The close proximity of the Sydney Harbour Bridge freeway and railway made the glazing's acoustic performance the prime selection criteria. To meet the acoustic requirements, approximately a third of the glass used in the building incorporated Viridian's HUSH acoustic interlayer. Specifically developed to dampen noise, the interlayer provides enhanced sound insulation performance. While obviously not the only material to contribute to the building's superior sound control, glass was a fundamental part of the overall acoustic solution.

"Acoustic separation of the external traffic noise and internal environment is controlled by the façade construction," explains Terry. "This generally consists of solid walls, fixed windows, openable windows and doors. Walls usually provide the best acoustics while doors and window openings are the worst. Acoustic performance is determined by the weakest acoustic element and a

The 1960s Milsons Point building before PTW Architects' innovative adaptation.

very small weakness can significantly affect the isolating capacity of the remainder of the divider. This makes it imperative that each material and the assembly is capable of playing its part."

"The North project has predominately windows and glazed doors facing the freeway and railway line so after the door seals the window and door glazing becomes the foremost acoustic separation element. The acoustic qualities of the glazing were of particular importance in the bedrooms where blocking external noise is arguably the most critical. The high level master bedrooms in the north east corner relied heavily upon the glazing and window assembly properties because of the direct exposure to the external road and rail noise source."

Supplied and fitted by Micos Aluminium Systems, all windows and doors were finished in powder coated aluminium frames. According to Con Micos, there were a number of challenges associated with installation. "We needed to test the performance of the glazing to make sure it met the specific RW rating that was requested by Marshall Day; for the penthouses this meant the use of double glazing. Along with this we had to curve the frame and glass for the corners of the building, meet the thermal performance requirements and retain colour consistency throughout the various thicknesses required both structurally and acoustically."

While not the primary focus of the development the building has still managed to incorporate a number of impressive sustainable features. "We are fortunate that the Sydney environment is fairly mild compared with other similarly developed parts of the world and our ESD requirements, while only now coming to the fore, will mostly be able to be managed by good quality passive design," says Terry. "Existing sites in restricted environments will always present challenges such as exposed orientation and overlooking that will require innovative solutions and different viewpoints to successfully resolve, especially within a developer driven residential market."

The retention of the original office building's structure meant that demolition and waste material disposal was greatly reduced, along with the energy normally expended in creating an entirely new structure. New basement excavation was minimal with most of the existing basement reused by using a car parking stacking systems where possible. In addition, each apartment has independent gas instantaneous hot water heating that can respond to the individual energy demands of each apartment, avoiding the space requirements, energy and running costs associated with a central hot water system. Separate air conditioning plant on each floor serves the apartments on each floor thereby closely matching the demands of the individual apartments and avoiding the energy and running costs associated with a central air conditioning system.

"The Australian aspiration for views, outlook, light and privacy drives the desire for more glazing than less which is conceptually in conflict with ESD objectives for less glazing and more energy efficient facades. Already the commercial market has realised the benefits for double glazing in sustainable building, however, resolution of this conflict to date in the residential market has still been managed largely by single glazing. Looking ahead, it is inevitable that double glazing will have to be adopted to preserve the degree of glazing desired as ESD requirements increase," says Terry.